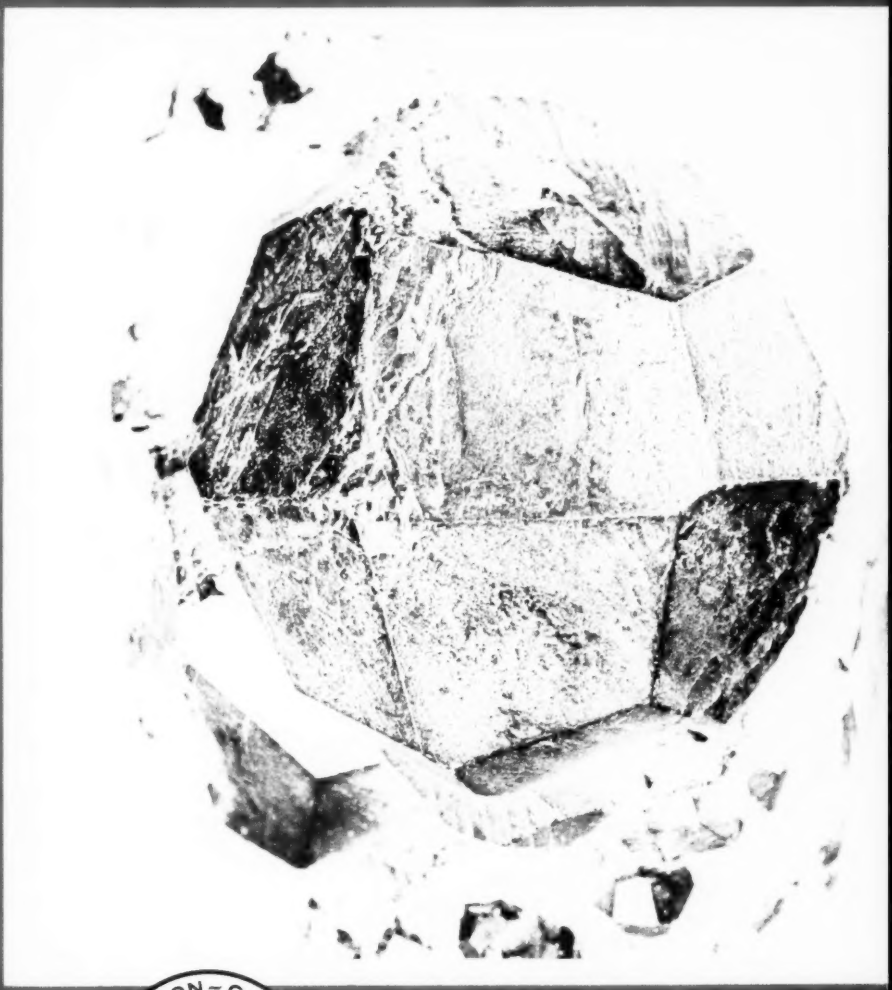
GeoTimes

Professional News Magazine



November 1957

Volume II, No. 5

Published Monthly by the
American Geological Institute

for precision microscopy with polarized light

Leitz POLARIZING *microscopes*

In such fields as geology, mineralogy, petrography, coal research, plastics, biology, chemistry and biochemistry, there is a Leitz *POLARIZING* Microscope designed to meet every requirement. No other manufacturer offers such a wide variety of polarizing microscopes and accessories, built to the highest standards of quality and design.

Leitz polarizing microscope, Model AM

- Rotating anastigmatic tube analyzer for improved image quality and freedom from eyestrain.
- Polarizing tube accommodates large field-of-view eyepieces.
- Bertrand auxiliary lens with iris diaphragm can be raised and lowered.
- Rapid clutch changer and centering device for permanent centering of objectives.
- Large substage illuminating apparatus with two-diaphragm condenser and polarizer, either calcite or filter.
- Rotating object stage on ball bearings, with vernier reading to 1/10th°
- Rack and pinion motion for raising and lowering stage, to accommodate large opaque specimens.
- Polarizing vertical illuminator easily attachable.

E. LEITZ, INC., Dept. GT-11
468 Fourth Ave., New York 16, N. Y.

Please send brochure on Leitz *POLARIZING* Microscopes

Name_____

Street_____

City_____ Zone____ State_____

08555

E. LEITZ, INC., 468 FOURTH AVENUE, NEW YORK 16, N. Y.
Distributors of the world-famous products of Ernst Leitz, Wetzlar, Germany
LENSES • CAMERAS • MICROSCOPES • BINOCULARS

Calendar

Cooperation of Society Secretaries in supplying meeting notices for GEOTIMES calendar is requested.

Nov. 3, 1957—SVP ANN. MTG., Acad. Nat. Sci., Philadelphia, Pa.

Nov. 4-5, 1957—SVP Technical Sessions, with GSA, etc., Atlantic City, N. J.

Nov. 4-6, 1957—GSA, ANN. MTG., Atlantic City, N. J. Geochem., MSA & PS ann. mtgs. in conjunction.

Nov. 5-8, 1957—NATIONAL WATER WELL EXPOSITION, Oklahoma City, Okla. Technical sessions Nov. 6 & 7 devoted exclusively to groundwater studies. Write: P. O. Box 222, Urbana, Ill.

Nov. 6-8, 1957—GULF COAST ASSOC. OF GEOL. SOCIETIES, 7th Ann. Mtg., Roosevelt Hotel, New Orleans, La.

Nov. 7-8, 1957—AAPG, PACIF. SECT., Los Angeles, Calif.

Nov. 7-8, 1957—SEGp, PACIFIC COAST SECTION, Ambassador Hotel, Los Angeles, Calif. Write: J. A. Hugus, Western Gulf Oil Co., 900 Wilshire Blvd., Los Angeles.

Nov. 8-9, 1957—AIME, Central Appalachian Sect., West Virginia Mining Inst., joint meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

Nov. 11-14, 1957—SEGp, 27th ANNUAL MEETING, Statler-Hilton Hotel, Dallas, Texas.

Nov. 18-Dec. 9, 1957—9TH PACIFIC SCIENCE CONGRESS, Pacif. Sci. Assoc., Chulalongkorn University, Bangkok, Thailand.

Dec. 2, 1957—AMC, Ann. Membership Mtg., Plaza Hotel, New York City.

Dec. 2-7, 1957—SIXTH COASTAL ENG. CONF., Univ. of Fla., Gainesville. Write: W. F. Tanner, Geol. Dept., FSU, Tallahassee, Fla.

Dec. 26-31, 1957—AAAS, Nat. Mtg., Indianapolis, Ind.

Feb. 16-20, 1958—AIME, ANNUAL MEETING, Hotel Statler, New York City. SEcG technical meetings held in conjunction.

March 3-4, 1958—AIME, SOC. PETROLEUM ENGINEERS, Fourth Annual joint meeting, Rocky Mt. Petroleum Sections, Cosmopolitan Hotel, Denver, Colo.

Mar. 10-13, 1958—AAPG, ANNUAL MEETING, Biltmore Hotel, Los Angeles, Calif.

Mar. 20-21, 1958—AIME: MID-CONTINENT LOCAL SEC; Petroleum Production & Reservoir Engineering Conf., Mayo Hotel, Tulsa, Okla.

March 27-29, 1958—OPTICAL SOCIETY OF AMERICA, Spring meeting, Sheraton-Park Hotel, Washington, D. C.

Mar. 27-28, 1958—SEPM, (PERMIAN BASIN SECT.) Ann. Tech. Mtg. Registration and sessions at Hotel Scharbauer, Midland, Tex. J. P. D. Hull, Jr., Chrmn. Loc. Comm.

Mar. 27-29, 1958—AIME: PACIFIC SOUTHWEST CONF.; St. Francis Hotel, San Francisco

Mar. 28-29, 1958—GSA, CORDILLERAN SECT., Annual Meeting, Eugene, Ore. Field trip on March 27.

April 17-18, 1958—SEGp, 11th Annual Midwestern Meeting, Mayo Hotel, Tulsa, Okla.

April 17-18, 1958—AIME, SOC. PETROLEUM ENGINEERS, Gas Technology Symposium, Lou.-Ark., Miss. & East Texas Sections, Shreveport, La.

April 17-19, 1958—AIME: PACIFIC NORTHWEST REGIONAL CONF., Spokane, Wash.

Apr. 27-30, 1958—AAPG, ROCKY MTN. SECTION, 8th Ann. Conv., Industrial Bldg., Natrona County Fairgrounds, Casper, Wyoming.

May 5-6, 1958—AIME, SOC. PETROLEUM ENGINEERS, Third Biennial Secondary Recovery Symposium, Wichita Falls, Texas.

May 5-7, 1958—AGU, Thirty-Ninth Ann. Mtg., Nat. Acad. Sci., Washington, D. C.

May 9-11, 1958—AIME: URANIUM SECT., 3rd Annual Uranium Symposium, Moab, Utah.

1960—XXIst INTERNATIONAL GEOLOGICAL CONGRESS, Copenhagen, Denmark. Field excursions to Scandinavian countries.

Doctoral and Post-Doctoral Fellowships Available

Applications are being received by the National Science Foundation for graduate and postdoctoral Fellowships. Approximately 1,000 fellowship awards will be made in March 1958 to American citizens selected for their scientific aptitude, academic records, and other related evidence after screening by panels of scientists established by the National Academy of Sciences and the Association of American Colleges.

The awards for graduate fellowships will range from $1,600 to $2,000 annually, while the regular postdoctoral awards will carry a stipend of $3,800 per year. A dependency allowance is available to all married Fellows. Tuition and laboratory fees and limited travel allowances will also be provided. Closing dates are December 23, 1957 for postdoctoral applicants and January 3 for graduate students at predoctoral levels. Apply to *Fellowship Office, NAS-NRC, 2101 Constitution Avenue, N.W., Washington 25, D. C.*

Senior postdoctoral Fellows and Science Faculty Fellows are awarded stipends adjusted to match as closely as feasible the regular salaries of the award recipients, up to a maximum of $10,000, with additional allowances for travel. Application for these awards must be made to the *Division of Scientific Personnel and Education, National Science Foundation, Washington 25, D. C.* before January 13, 1958.

Fulbright Professorship In Geophysics Open

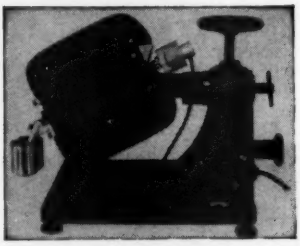
There is an opening for a visiting professor in geophysics at the University of Arequipa, Peru, March-December 1958 under the Fulbright Program. The lectureship may be in the area of exploration geophysics or, alternatively, in volcanology or hydrology. Additional information and application forms may be obtained from the *Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Avenue, N.W., Washington 25, D. C.*

FRANTZ ISODYNAMIC Magnetic SEPARATOR

The variety of separations made possible by the ISODYNAMIC Magnetic Separator is practically infinite. Its use is limited only by the great number of magnetic minerals in nature—even many not usually thought of as magnetic—and their range of susceptibilities.

Peculiar to the ISODYNAMIC Separator is the special configuration of the pole pieces which accounts for its exceptional selectivity. This results in a constant force on a particle of given susceptibility, regardless of its position in the operating space.

For complete information, write for Bulletin 137-I



Model L-1
INCLINED FEED
Vertical Feed Attachments also available

S. G. FRANTZ CO., INC. — ENGINEERS

P.O. Box 1138
Trenton 6, New Jersey
U.S.A.

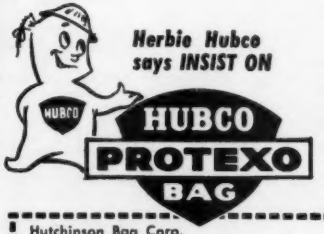
Cable Address:
MAGSEP
Trentonnewjersey

HUBCO *means* * SAFE CONDUCT

for Samples from Rig to Lab . . .

Use HUBCO sand sample bags for safe arrival at the laboratory with contents and markings intact.

NEW Handy Pack at oil field supply jobbers and dealers. Or mail the coupon for free sample, price list and dealer's name.



PROTEXO BAGS
- Strong
- Sift Proof
- Geologist-Designed
- Highest Quality Cambric Cloth

MAGIC-MARK TAGS
- Water Insect and Mildew Proof
- Guaranteed to keep even ordinary pencil markings legible

**WEBSTER "SAFE CONDUCT—that which assures a safe passage"...*

Hutchinson Bag Corp.
Hutchinson, Kansas
Send sample and information to:

NAME .....

ADDRESS .....

.....

This Month in GEOTIMES

Professional News Magazine

Published by THE AMERICAN GEOLOGICAL INSTITUTE

Robert C. Stephenson, EDITOR

Kathryn Lohman CIRCULATION MANAGER

Vol. II, No. 5 November, 1957

Geologic Aspects of the Recent Underground Atomic Explosion in Nevada
By E. B. ECKEL, C. B. READ, W. H. DIAMENT and E. DOBROVOLNY 6

Building for the Future 7

A Geologic Challenge
By D. E. GROVE 8

I.U.G.G. Meeting Successful 9

AGI Glossary 10

AGI Nominees 11

AMERICAN GEOLOGICAL INSTITUTE

Officers

PRESIDENT
Joseph L. Gillson
VICE PRESIDENT
J. V. Howell
PAST PRESIDENT
M. M. Leighton
SECRETARY-TREASURER
Donald H. Dow
EXECUTIVE DIRECTOR
Robert C. Stephenson

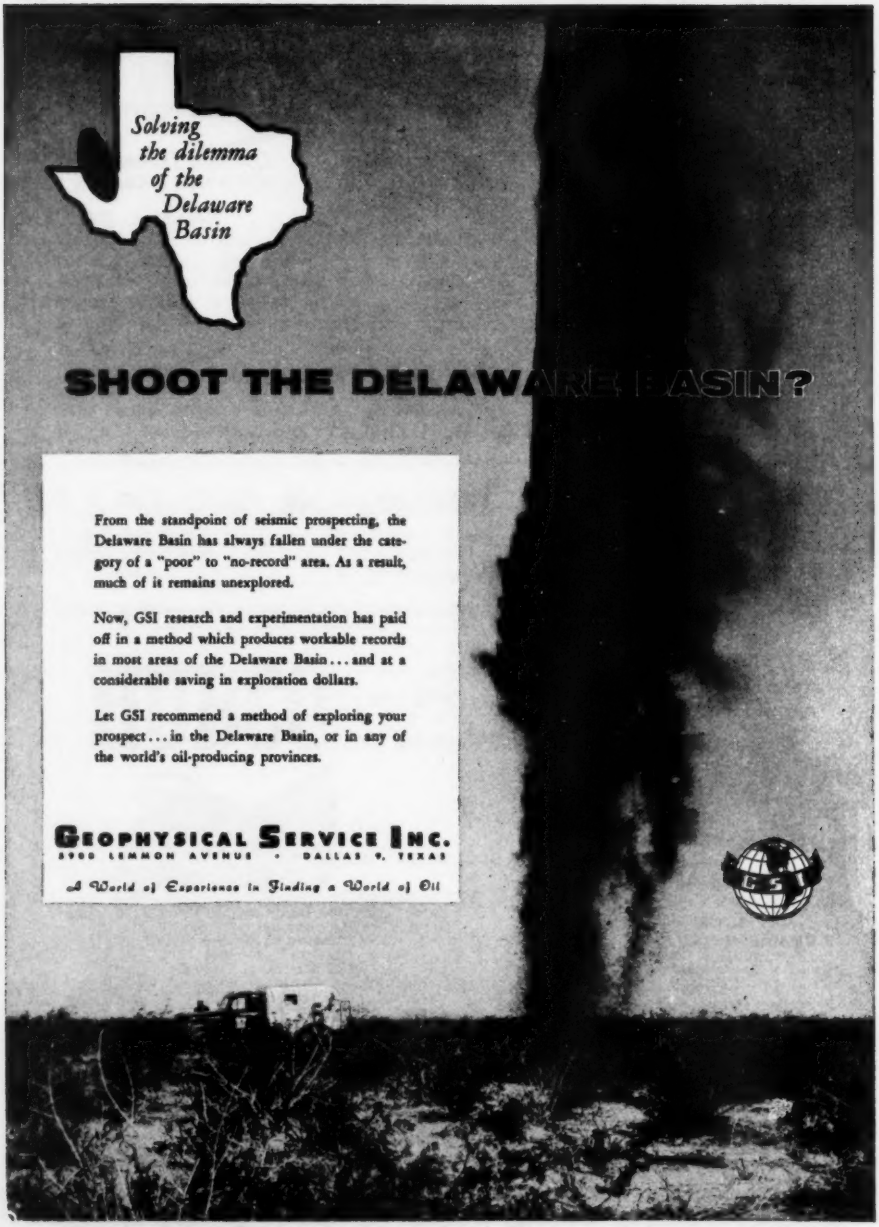
The American Geological Institute operates as a separate entity under the National Academy of Science-National Research Council.

Member Societies

American Association of Petroleum Geologists
American Geophysical Union
American Institute of Mining Metallurgical and Petroleum Engineers
Association of American State Geologists
Association of Geology Teachers
Geochemical Society
Geological Society of America
Mineralogical Society of America
Paleontological Society
Seismological Society of America
Society of Economic Geologists
Society of Economic Paleontologists and Mineralogists
Society of Exploration Geophysicists
Society of Vertebrate Paleontology

GEOTIMES is published monthly by the American Geological Institute at Williams & Heintz Lithograph Corporation, Washington, D. C. Editorial, Circulation and Advertising Offices are at 1515 Massachusetts Ave., N.W. Address all correspondence to 2101 Constitution Ave., N.W., Washington 25, D. C.

Subscriptions: Distributed to members of member societies as a part of their societies' membership. Non-member, U.S.A. and Possessions, Canada and Mexico, $2.00 per year; elsewhere, $2.50 per year.
The American Geological Institute and its member societies assume no responsibility for the statements and opinions advanced by contributors to GEOTIMES.


Solving
the dilemma
of the
Delaware
Basin
SHOOT THE DELAWARE BASIN?
From the standpoint of seismic prospecting, the Delaware Basin has always fallen under the category of a "poor" to "no-record" area. As a result, much of it remains unexplored.
Now, GSI research and experimentation has paid off in a method which produces workable records in most areas of the Delaware Basin... and at a considerable saving in exploration dollars.
Let GSI recommend a method of exploring your prospect... in the Delaware Basin, or in any of the world's oil-producing provinces.
GEOPHYSICAL SERVICE INC.
6900 LEMMON AVENUE • DALLAS 9, TEXAS
A World of Experience in Finding a World of Oil

Teaching for Teachers

It is the fad today to complain about the shortcomings of our high school educational system, particularly with regard to college preparatory courses in science and mathematics. Scientists themselves are likely to be very vocal on the subject, but they as individuals are quite likely to contribute nothing tangible (other than talk, if that is tangible) to the solution of the problem.

We should remember that school administrators and teachers have their problems. We should be cognizant of these problems and contribute wherever possible to their solution.

A large number of teachers who are called upon to teach science and mathematics in our high schools are admittedly deficient in academic training in these subjects. Most of these teachers are working toward graduate degrees, since rank and salary scales are tied to academic degrees held. Many of them would like to take courses in science and mathematics as a part of their graduate program but are frustrated in the attempt. A substantial number of colleges and universities granting graduate degrees in education offer no graduate credit in sciences to science teachers working toward advanced degrees. The schools of education have argued that science courses are not in their bailiwick—that the student will have to go to the science departments for such courses. The science departments, on the other hand, say that they are not about to give graduate credit for undergraduate-level courses sought by these science teachers.

This puts the poor high school science teacher in the middle. He is being criticized by the scientific community for failing to prepare students for subsequent college training in the sciences, yet this same group is thwarting his effort to obtain additional science training in his graduate program.

If our colleges and universities want better material from which to develop the scientists and mathematicians of tomorrow, then the schools of education and the departments of science and mathematics must work together. Science and mathematics courses for graduate education credit are a must! Ideally, scientists should put their best talents to the development of science teaching courses aimed at teaching teachers to teach. Geology as a science could profit tremendously if a course to teach teachers to teach geological sciences were generally available to high school science teachers.

OUR COVER

GARNET, Isometric, Russell, Mass. 2.5X from the Fitts Collection, University of Massachusetts, Photo by B. M. Schaub.

The AMERICAN GEOLOGICAL INSTITUTE is a non-profit professional service organization established and managed by the scientific societies in the fields of geology and geophysics in cooperation with the National Academy of Sciences-National Research Council. It is the instrument of the profession serving and advancing the welfare of the geoscientist in matters relating to education, professional responsibilities and government relations. It is an active member of the Scientific Manpower Commission. It also functions in the stimulation of public education and awareness of the earth sciences, through career literature, the scouting program and other channels of communication.

GEOTIMES is the news magazine of the geological sciences. It reports on current events in the earth sciences, public education and public relations efforts throughout the profession, as well as appropriate legislative and governmental issues. It announces scholarships, fellowships, publications and new developments. It provides a forum for discussion of timely professional problems, and affords a common bond between the many specialized groups within the earth sciences.

GEOLOGIC ASPECTS OF THE RECENT UNDERGROUND ATOMIC EXPLOSION IN NEVADA[1]

by E. B. ECKEL, C. B. READ, W. H. DIAMENT, and E. DOBROVOLNY
of the U. S. Geological Survey

The free world's first large deep underground nuclear explosion took place at the Nevada Test Site at 10:00 a.m., September 19, 1957. In general the press gave excellent accounts of the experiment and of its seismic effects.

A few subsurface nuclear explosions have been carried out in the past; dynamite explosions in rock and soil are commonplace. No effort had ever been made in this country, however, to completely contain all of the effects of a large explosion, whether nuclear or conventional high explosive. Except for a few small tests with dynamite, previous explosions had been designed to break the rock to some free surface—in a mine, in a quarry face, or to the ground surface.

The September 19 test, dubbed "Rainier," was conducted by the Navada Test Organizations made up of the Atomic Energy Commission, the Department of Defense, other government agencies, and their contractors, including the University of California Radiation Laboratory, which had primary interest in the underground detonation. It took place in a small room at the end of a horizontal tunnel, nearly 2,000 feet long and about 800 feet beneath the surface. The explosion was produced by a nuclear device with an energy yield equivalent to between 1 and 3 kilotons of TNT. The end of the nearly straight tunnel, was looped in the expectation that the tunnel would be sealed tight by compressed rock ahead of the air shock wave as it moved outward from the explosion chamber.

Geology and geophysics played a far larger part in the design and operation of this test than they had in any other nuclear experiment in history. The test itself brought to a pause a concerted effort by a U. S. Geological Survey team that had begun work more than a year earlier. In July 1956 the Test Division of the Atomic Energy Commission asked the Geological Survey to provide advice on the geological and geophysical feasibility of underground nuclear explosions. Checked by a group of outstanding non-Survey consultants, its duties were to aid in choice of a site and design of the underground workings, to predict the seismic effects both on and off the Test Site and to assess the chances of contaminating ground water supplies. Here was a real challange, not only in application of geologic principles to novel engineering problems, but in the chance to get at some of the fundamentals of geology. Seldom have we been able to study seismic waves caused by such large energy sources underground—and at a precisely known place and time; never before has man attempted to produce a good-sized magma and has had the hope of studying it later.

[1] Publication authorized by the Director of the U. S. Geological Survey. Published with the permission of the U. S. Atomic Energy Commission.

OPERATION PLUMBOB

Into the job went a number of man-years of work with constantly shifting deadlines and with new problems, human and technical, coming up faster than older ones were solved. In addition to the detailed geologic and topographic mapping, the petrographic and chemical studies and the exploratory drilling that are normal to such jobs, there were three facets of the investigation that warrant mention—geophysical measurements, physical properties tests, and tests with high explosives. Seismic, gravity and other geophysical methods were used extensively. In fact, as a by-product of the work the Survey was called on to record the seismic results of all the tower and balloon tests carried out during the entire test series, called "Operation Plumbob." These records of wave amplitudes provided data for relating the earth stresses caused by nuclear shots in air with those beneath the surface. They also added to basic knowledge of the earth's crust. The physical properties—electrical, comprehensive strength, permeability and a host of others—are being determined for the rocks involved in the test and the results will be correlated with the geology

Continued on page 14

Committee of One Hundred

BUILDING *for the* FUTURE

Geologists and Geophysicists who have pledged membership in the Committee of One Hundred for AGI are helping to build toward a stronger profession for tomorrow. Many facets of the program of the American Geological Institute are oriented to aid the embryonic geoscientist and the neophyte who is just trying his professional wings. These youthful scientists of today will provide the strength of the profession tomorrow. The American Geological Institute, itself still quite youthful, will be growing to maturity along with these geologists and geophysicists of tomorrow.

The Committee of One Hundred for AGI, which was first started less than a year ago, now has 58 members. This list of members is an imposing cross section of the leaders in geophysics and geology. It is a list of men who see the AGI not as an organization that will bring material benefits to them as individuals, but as a common banner under which geological scientists, regardless of fields of specialization, may join to face problems of common interest.

Members of the Committee of One Hundress for AGI pledge to support the Institute through a contribution of at least $100 per year for five years. Some members have completed the pledge in a single payment; some have contributed stocks. The various alternatives offer different tax advantages to donors. You may pledge membership to the Committee of One Hundred for AGI or obtain additional information by writing the *American Geological Institute, 2101 Constitution Avenue, Washington 25, D. C.*

A race is often lost when the finish line seems comfortably near and the front runner feels he has a safe lead. This thought may be pertinent to AGI's endeavor to achieve financial stability. A lot of new money has come into AGI coffers during the past year, but our problems have grown also. This issue of GeoTimes is going to nearly 29,000 geologists and geophysicists. A year ago this number was just over 16,000. GeoTimes will blanket the profession by early 1958 with a circulation of about 30,000. Little was it realized that the geological scientists were so numerous until they were brought together through GeoTimes. Sound progress of AGI will require more members of the Committee of 100, more industrial associates and more individual contributors. We can be pleased with the progress made, but we cannot afford to rest on our oars.

COMMITTEE OF ONE HUNDRED FOR AGI

Robert F. Aldredge
Harold L. Alling
Gordon Atwater
F. L. Aurin
Roland F. Beers
John M. Birdsall
Ira H. Cram
Morgan J. Davis
L. Decker Dawson, Jr.
A. Rodger Denison
Frank De Wolf
H. G. Doll
E. A. Eckhardt
G. Donald Emigh
Harold B. Ewoldt
W. E. Franks
G. C. Gester
J. L. Gillson
Cecil H. Green
Dilworth S. Hager
B. F. Hake
Michel T. Halbouty
Robert M. Hardy
K. C. Heald
Hollis D. Hedberg
William B. Heroy
Herbert Hoover, Jr.
J. V. Howell
J. S. Hudnall
R. N. Hunt
Meredith E. Johnson
Wayne V. Jones
G. M. Knebel
Ottmar F. Kotick
Frederic H. Lahee
Royce R. Latimer
Leggette, Brashears & Graham
Morris M. Leighton
A. I. Levorsen
J. B. Lovejoy
Frank T. Manheim
L. F. McCollum
Eugene McDermott
D. A. McGee
Arthur A. Meyerhoff
Arthur Montgomery
T. J. O'Donnell
George W. Pirtle
Wallace E. Pratt
R. O. Rhoades
Sam D. Rogers
G. Wendell Smith
Noyes D. Smith, Jr.
Noel H. Stearn
John R. Suman
Earle F. Taylor
J. W. Thomas
Theron Wasson

Urban Growth

A GEOLOGIC CHALLENGE[1]

Engineering geology should parallel urban and industrial growth—seldom does. Expanding urban populations utilize building sites not always optimum from the standpoint of geologic safety. Problems of ground water pollution, run-off and flood control, seismic activity, grading in hillside areas, landsliding and slump, and many another actual or potential geologic danger that is accentuated by such expansion, challenge the profession to expand its engineering geological thinking.

Memories of the St. Francis Dam Disaster (1928) near Los Angeles, were reawakened in 1952 in that city, following near record-breaking rains after about seven years of drought. Again, within the past two years and continuing today, landsliding in wave-cut cliffs in the Pacific Palisades and certain other areas of both Los Angeles City and County, has focused attention of public officials and taxpayers on the necessity of properly evaluating and controlling geologic hazards.

In the former instance solifluction, slump, soil creep and extensive failure of man-made earth fills caused extensive damage in hillside and canyon developments running well into six figures, a plethora of law suits. Although certain offending sediments, especially members of the Topanga, Modelo and Santa Monica slate formations were principal contributors to such types of damage, decomposed granites in portions of the Hollywood Hills contributed extensive loads to streets, homes and gardens.

In the case of the Pacific Palisades and similar landslide areas, unfortunately extensively subdivided, the geologic failures have been occasioned by factors considerably more complex, including undercutting of wave-cut cliffs, faulting, dip-slips and underground saturation of sediments. Continuing subsidence of portions of the Long Beach-Wilmington area is now classic in the production of a blighted area.

Local geologists, civil and soil mechanics engineers, landscape architects and structural engineers, all nominated by various technical societies and all specialists in some phase of the above and similar problems, have organized on a cooperative, non-pay civic duty basis, with blessings of the Los Angeles City Council, to attack and reconcile the various geologic hazards peculiar to this great urban area. Geologic problems will be emphasized in studies of existing and proposed (strengthened) grading and building codes, zoning ordinances and civic planning. Cooperation between the various professions engaged in the study is both warm and lucrative.

Indicative of the heterogeneous organization of this "Geological Hazards Committee of the City of Los Angeles" is the breadth of field covered by the various members enumerated. It is hoped that other expanding urban areas will follow this basic and necessary plan. The Membership:

G. Austin Schroter, Chairman
Cons. Geologist-Engineer
Schroter & Lockwood, Inc.

Roy G. Johnston
Structural Engineer
Brandow & Johnston

Lester F. Brinkman
Dept. of Planning
City of Los Angeles

R. Bruce Lockwood
Cons. Geologist-Engineer
Schroter & Lockwood, Inc.

John Case
Cons. Structural Engineer

Ray O. Maurseth
Cons. Foundation Engineer
Maurseth & Howe

Thomas, Clements, Chairman
Dept. of Geology
University of Southern California

Vernon A. Smoots
Foundation Engineer
Dames & Moore

Ralph D. Cornell
Landscape Architect
Cornell, Bridger & Troller

Blair W. Stewart
Mining Geologist
V.P. Coronado Copper & Zinc Co.

U. S. Grant
Professor of Geology
U.C.L.A.

Robert Stone
Cons. Engineering Geologist
Stone Geological Service

John S. Gregory
Civil Engineer

Hanley A. Wayne
Civil Engineer
L.A. Dept. Bldg. & Safety

[1]By D. E. Grove, Chief Geologist, Geological Instrument Division, Stratex Instrument Company, Inc., Los Angeles 26, California.

DR. WILLIAM E. BENSON has been appointed Program Director for Earth Sciences in the National Science Foundation. Dr. Benson, who has been with the Foundation since January 1956, previously served as Executive Secretary, Earth Sciences Division, NAS-NRC, and Geologist, U. S. Geological Survey.

During Fiscal Year 1957 the NSF made 54 grants for basic research in the earth sciences, totalling $770,150.

IUGG Meeting Successful

The principal gathering of the world's geophysicists to be held during the International Geophysical Year, 1957-1958 took place between the 3rd and 14th of September on the campus of the University of Toronto, Toronto, Canada. This was the Eleventh General Assembly of the International Union of Geodesy and Geophysics and the first General Assembly to be held outside of Europe since the seventh, which took place in Washington, D. C. in 1939.

Of the 1400 scientists and guests who attended the meetings, about 500 came from the United States, nearly 400 from Canada, and more than 500 from 48 other countries. The larger overseas delegations included 95 from Great Britain, 80 from France, 43 from the U.S.S.R., and 40 from Germany.

The seven associations comprising the union held simultaneous sessions dealing respectively with geodesy, seismology, meteorology, geomagnetism, oceanography, hydrology and volcanology. Special symposia and discussions dealt with several topics, including the water balance between oceans, atmosphere and fresh water, atmospheric chemistry, radioactivity and pollution and the use of atomic explosions for exploring the earth's interior. As a result of the latter, the time and place of an underground explosion in Nevada was announced ten days in advance. A symposium on paleomagnetism revealed great differences in opinion as to the significance of the results, but another on radioactive methods of age determination showed that improvements in techniques promise to make these methods more accurate and more widely applicable.

Plans were launched to sample the chemical composition of the seventy chief rivers of the world at different times of the year, while it was recommended that nations consider the possibility both of drilling and coring the sediments on the ocean floor and of drilling through the oceanic crust to penetrate the mantle.

The progress of the International Geophysical Year was a favorite subject of informal discussions and public addresses given on the Soviet Polar work by I. Tolstikov and on the American Satellite program by L. V. Berkner.

Thirty companies from 8 countries participated in a Trade Fair of scientific equipment and instruments.

The campus of the University of Toronto proved to be convenient for both residence and meetings; the weather was perfect; a number of short tours and entertainments gave a gala spirit to the meetings. These fortunate circumstances combined with the excitement engendered by the IGY to give everyone a thoroughly friendly feeling. Controversial matters outside the realm of science were carefully avoided. As a result there was a very free discussion and exchange of ideas about the earth between scientists of all the nations present. It is fair to say that no one tried to make propaganda, but that all vied with one another to show their scientific works and skill, realizing that progress in the earth sciences requires the cooperation of every nation and can only result in benefit to all mankind.

Finland has been chosen for the site of the 12th General Assembly in 1960. Officers elected for the IUGG were:

J. Tuzo Wilson, Canada, President
V. V. Beloussov, USSR, Vice President
W. A. Heiskanen, Finland, Vice Pres.
G. Laclavere, France, Gen. Secretary

Among the association officers elected are the following from the U. S.:

Joseph Kaplan, UCLA: President of Geomagnetism and Aeronomy

Harold G. Wilson, N. Y. School of Forestry: President Ass'n. of Hydrology

Charles A. Whitten, U. S. Coast & Geodetic Survey: Vice President Ass'n. of Geodesy

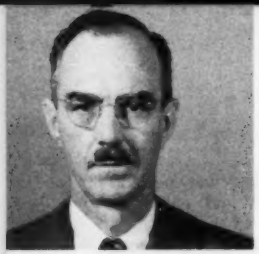
J. Frank Schairer, Carnegie Institute of Washington: Vice President Ass'n. of Volcanology.

Oldest Geologist Dies

Joseph Burr Tyrrell, of Toronto, Canada, died in August 1957 a few months before his 99th birthday. He was the oldest known member of the AGI member societies. Born in Weston, Ontario on November 1st, 1858, he took a Master of Arts degree from the University of Toronto in 1880.

Mr. Tyrrell was a specialist in the geology of ore deposits, and could speak Cree and Eskimo. He had been president of the Kirkland Lake Gold Mine since 1924.

His memberships included Geological Society of America; American Institute of Mining, Metallurgical and Petroleum Engineers; Canadian Institute of Mining and Metallurgy; and Institute of Mining and Metallurgy, England.



AGI GLOSSARY

J. Marvin Weller Heads Glossary Review Committee

The Glossary of Geology and Related Sciences, which was published in June 1957, is now in its second printing. By October 15, 6,500 copies of the glossary had been sold, and it has been hailed as one of the most significant of all contributions to geological literature. It is viewed by many as the most important accomplishment of the American Geological Institute.

To J. V. Howell, Coordinating Editor, and to the more than ninety specialists who contributed to the compilation of the Glossary, the volume of sales and the fine reception which the book has had attest a job well done. Before the Glossary was even in print, the men who were responsible for its compilation were laying plans for a continuing organization to receive and evaluate additional terms, corrections and deletions in order that subsequent revised editions of the Glossary would be possible. It was known that the first edition would have deficiencies which could best be brought out through its distribution and use.

To head the GLOSSARY REVIEW COMMITTEE the Institute is indeed fortunate to have the volunteer service of Dr. J. Marvin Weller of the University of Chicago Department of Geology. He will be assisted by committee members chosen to represent the various specialties of geology, geophysics and related areas of science covered by the Glossary.

As indicated in the Preface to the first edition of the Glossary of Geology and Related Sciences, constructive criticism pertinent to the Glossary, its organization and contents is invited and new terms appearing in geological literature should be submitted for consideration. The Glossary Review Committee, under Chairman Weller, will review the Glossary systematically and consider all suggestions offered by the profession.

The Glossary File, with the 14,000 cards from which the first edition was compiled, is housed at the Illinois Geological Survey, ready to be used in connection with the revised edition. It is tentatively planned that the second edition of the Glossary is to be published three to five years hence, depending upon the availability of the first edition and the status of the work of the Glossary Review Committee.

All geologists and geophysicists are urged to cooperate in supplying constructive criticism and additional terms to make the second edition of the Glossary of Geology and Related Sciences a thing of professional pride and accomplishment. Your comments may be directed to Dr. J. Marvin Weller, Department of Geology, University of Chicago, Chicago, Illinois.

Directory of Geological Material in North America

At its September meeting in Calgary, the Executive Committee of the American Association of Petroleum Geologists voted to turn over to the AGI for distribution the second edition of the *Directory of Geological Material in North America.* The directory is now in the hands of the printer and is expected to be available for distribution in December 1957. The AGI will pay for the printing of the book out of profits from recent Glossary sales and will receive any profits accruing from sales.

The original edition of the Directory was published by the AAPG as a supplement to the Bulletin in 1956, at which time it was given free to all members. An additional 3,000 copies were subsequently sold. Authors of the Directory were J. V. Howell and A. I. Levorsen.

The Second Edition was greatly expanded through the efforts of AAPG Executive Director Robert H. Dott and Miss Jane Weaver, with aid of the original authors, Howell and Levorsen. The second edition contains double the number of pages of the 1946 edition. It has already been offered to AAPG members at $3.00 per copy, and to non-members at $3.50. Further notice concerning its availability, price and ordering instructions will appear in the December GeoTimes.

The American Geological Institute is most appreciative of this generous action on the part of the American Association of Petroleum Geologists. The Directory will be a useful and valuable reference book to all geologists and geophysicists, regardless of area of specialization. The travelling geologist cannot afford to be without the Directory nor can the student who is becoming familiar with sources of geological materials.

AGI NOMINEES

At the Annual Meeting of the Board of Directors of the American Geological Institute, held on November 4 during the GSA meeting in Atlantic City, new officers will be elected to take office at the close of the Board Meeting.

The Nominating Committee appointed by Dr. J. L. Gillson, President, consisted of Dr. Meredith E. Johnson and Dr. Robert L. Bates, both Directors of AGI. Following are their nominations:

For President the nominee is DR. J. V. HOWELL who is now a Vice President of the Institute. An independent petroleum geologist from Tulsa, Oklahoma, Dr. Howell is a charter member of AAPG; he was elected an Honorary Member in 1957. He has been active in affairs of both the AAPG and the GSA. His name is synonymous with the Glossary of Geology and Related Sciences of which he was the coordinating editor. He is coauthor with A. I. Levorsen of the Directory of Geological Material in North America, the second edition of which is soon to appear. He has made many other contributions to the literature of petroleum geology. His leisure hours, if they can be so called, are devoted to detective work and his assignment is the ferreting out of bibliographic data concerning the prominent early U. S. geologist, F. V. Hayden.

For Vice President the nominee is PAUL L. LYONS, who is a Director of the AGI, representing the Society of Exploration Geophysicists. He is Chief Geophysicist of the Sinclair Oil & Gas Co. Mr. Lyons is a past President of SEGp and editor of *Geophysics*. He also served as editor of Vol. II, *Geophysical Case Histories*.

For Secretary - Treasurer, DONALD H. DOW is nominated for re-election. Mr. Dow is with the Geologic Division of the U.S. Geological Survey, Washington, D. C. He has served for a number of years as Treasurer of the Pick and Hammer Club of Washington. His experience on budgetary matters has been of tremendous aid to the Institute.

In accordance with the Constitution and Bylaws of the AGI, additional nominations may be made from the floor by the Directors at the time of the election.

AAPG RESEARCH GRANTS-IN-AID

Provided by Petroleum Geologists

January 15, 1958 is the closing date for applications for grants-in-aid to support research primarily in the areas of petroleum geology and secondarily in the education and training of geologists, administered by the Research Committee of the American Association of Petroleum Geologists, headed by *Dr. R. Dana Russell, Ohio Oil Company, Denver Research Center, Box 269, Littleton, Colorado.* Applicants need not be AAPG members. Application forms may be obtained from Dr. Russell or from other members of the 24-man Research Committee listed on page 2392 of the October 1957 AAPG Bulletin where other details about these grants may be found.

Attention of all petroleum geologists should be drawn to the fact that this is their research fund. There has been no Ford Foundation, no R.A.F. Penrose Bequest, no National Science Foundation money pumped into this program. It is a program by petroleum geologists to help fellow geologists do research. Lacking big money, the fund needs a lot of little money. An average of $5 from 10,000 petroleum geologists for five years running would give an income producing research endowment of one-half million dollars. This would be a significant start. Research made possible by such a fund could yield significant results that would benefit all petroleum geologists. *You can send your AAPG Research Fund contribution with your 1958 dues.*

MANPOWER *in a column —*

By HOWARD A. MEYERHOFF
Scientific Manpower Commission

The Reserve Act of 1955 enabled young men who had reached age 19 to enlist in the reserve, where their full-time service in uniform was limited to 6 months of training. By subsequent Presidential directive, scientists and engineers engaged in "essential activities" were permitted to enter this program, regardless of age. Unfortunately, men under 19 did not respond to the program in the numbers anticipated, nor did scientists and engineers make the most of this method of meeting their military obligation. Faced with a deficiency in numbers, the Department of Defense then opened the general reserve program to all men between ages 17½ and 26. The result was a stampede of older men facing early induction, and by May the reserve quota was filled, reserve budgets were strained, and the program was suspended.

Both general and special skills reserve programs are still closed, but Selective Service has processed scientists and engineers and held them in the expectation that the special skills reserve would again be available to them. But this has been of little help to those who had planned the timing of their military training. Many local boards are also confused. The Presidential directive requires that men qualified for the special skills reserve program enter the service within 30 days after the approval of their application or be liable to induction for the regular two-year tour of military service. We do not know how many men have gone the two-year route since enlistment in the reserve was closed to them, but the number is greater than we like to think.

How soon the reserve will be opened is anyone's guess. For those who have been planning to enter it, the following course of action is recommended: If application has been made and approved, the applicant may, on proof of inability to enlist in any of the services, ask his local board to give him a temporary stay of induction and to channel him into the first reserve vacancy that occurs; or request, with supporting letters from his employer or his graduate school, that he be reclassified II-A (if employed in an essential activity) or II-S (if he proposes to continue with graduate work). If application has not yet been entered, the registrant should request deferment and appeal any refusal of a II-A or II-S classification so as to maintain his current status until Congress indicates the course of action to pursue.

What Did You Do?

During Geology Month in Scouting.

The curtain has come down on the "Greatest Show on EARTH," but there will be curtain calls for the stars of the geologist cast that performed on the local stages from the Atlantic to the Pacific during Geology Month in Scouting, October 1957.

This much we know—hundreds of geologists were impressed by the wholesome interest, youthful enthusiasm and intelligent understanding of the Scouts with whom they worked during the month. What we do not know is—WHAT DID YOU DO?

In order that we can evaluate the success of this gigantic concerted effort, we need a report from you. Write a short summary of what you did—your programs, field trips, movies and so forth. Did geology and geologists get any local publicity as a result of your efforts? Did you work up any new and interesting games, projects, stunts, etc., that would be of use in future Scouting efforts? What was lacking? Was this due to deficiencies in planning by geologists at the national level? Send your report to CHALMER COOPER, U. S. Geological Survey, Washington 25, D. C.

The AAPG and AGI Boy Scout Committees wish to thank each man (and the number of lady geologists, too) who generously devoted time and effort to make the program an outstanding success in so many areas. Many of the contacts made during Geology Month are sure to continue and to reflect untold benefits to our science of geology and to the youth of our land.

CIVIL SERVICE EXAM FOR GEOLOGISTS

The U. S. Geological Survey has announced that a Civil Service written examination for geologists GS-5, $3,670 and GS-7, $4,525 will be given on January 6, 1958. GS-5 is the usual starting grade for graduating seniors, while the GS-7 is the usual initial rank for the graduate holding a master's degree or equivalent training or experience.

The closing date for applications is December 3, 1957. Apply to Board of *U. S. Civil Service Examiners, Geological Survey, Department of Interior, Washington 25, D. C.*

Popular Geology in Print

by Mark W. Pangborn, Jr.

Among the best of the recent books on our mining past is *Nell Murbarger's* GHOSTS OF THE GLORY TRAIL (Desert Magazine Press, 1956, $5.75), a well-illustrated compendium of facts and tales about 275 Great Basin camps which flourished between 1860 and 1920. *Robert G. Ferguson's* LOST TREASURE; THE SEARCH FOR HIDDEN GOLD (Vantage Press, 1957, $2.75) is a pleasant compilation of lost-mine lore; in LOST MINES AND HIDDEN TREASURE (Naylor, 1956, $4), the author, who calls himself *Leland Lovelace*, has trouble separating fact from fancy.

Lucius Beebe's LEGENDS OF THE COMSTOCK LODE (Stanford University Press, 5th ed., 1956, $2) recaptures the fragrance of Nevada's great bonanza; GOLD RUSH COUNTRY, by the editors of Sunset Magazine (Lane Publishing Co., 1957, $1.75), is a richly illustrated guide to the old towns of California's Mother Lode. THE GEOLOGICAL STORY OF DEATH VALLEY, *by Thomas Clements* (Desert Magazine Press, 1954, $1.50), accurately traces the history of another much-prospected area, while *Ruth Kirk's* EXPLORING DEATH VALLEY (Stanford University Press, 1956, $1.75) is a dependable road guide for the tourist.

In GOLD ON THE DESERT (University of New Mexico Press, 1956, $4), *Olga Wright Smith* vividly describes a year spent in southwestern Arizona operating a small mine and collecting lapidary materials. *June Metcalf's* MINING ROUND THE WORLD (Oxford University Press, 1956, $2.50) will intrigue older children and adults with its accounts of Shinkolubwe, Broken Hill, Kimberley and other famous mines.

Two good historical novels about mining for the 10 to 14 year old group are *Stephen Holt's* WE WERE THERE WITH THE CALIFORNIA FORTY-NINERS and *Benjamin Appel's* WE WERE THERE IN THE KLONDIKE GOLD RUSH (both Grosset & Dunlap, 1956, $1.95). Boys 12 to 16 will enjoy SEARCH IN THE DESERT, by *Franklin Folsom* (Funk & Wagnalls, 1957, $2.75), which features the use of helicopters in uranium prospecting, and *Jack Hambleton's* WINGS OVER LABRADOR (Longmans Green, 1957, $3.50), an aviation story with a very fine mining background based on the recent iron discoveries.

NATIONAL MUSEUM APPOINTMENTS

Four new appointments have been made in the Department of Geology to help care for collections and continue research work discontinued by vacancies due to deaths and retirements. All appointments are in Paleontology; three in the Division of Invertebrate Paleontology and Paleobotany, and one in Vertebrate Paleontology.

Dr. Porter M. Kier was appointed on June 17, 1957, to take charge of the collection of fossil echinoderms. Kier took his doctorate in Cambridge University, England, and taught for the year preceding his present appointment in the University of Houston. He published research in Mesozoic echinoids, Paleozoic echinoids and Paleozoic crinoids. At the National Museum he will have charge of the Springer and national echinoderm collections. Kier is at present doing research on Paleozoic echinoids and starfishes. He will welcome meeting and corresponding with others interested in these fossils.

Dr. Richard S. Boardman, formerly of the U. S. Geological Survey and stationed in the U. S. National Museum, transferred to the Smithsonian Institution on July 1, 1957. Boardman received his degree from the University of Illinois. His primary interest is in the morphology and general paleontology of the Bryozoa. He will carry on the work started by Dr. R. S. Bassler at the Museum more than 50 years ago. Boardman is now finishing work on the morphology of some Devonian trepostome bryozoans, but is anticipating an extensive study of Ordovician bryozoa of the Appalachians and parts of the Midwest.

Mr. Richard E. Grant was given a four-year appointment in the Smithsonian Institution on a National Science Foundation Grant to Dr. G. A. Cooper, beginning July 17, 1957. Grant will collaborate with Cooper on a study of the extensive collection of Permian brachiopods from the Glass Mountains, brought together by Cooper during the last 17 years.

Dr. Peter P. Vaughn was appointed to the Division of Vertebrate Paleontology on July 15, 1957. Vaughn took his degree at Harvard University and has taught anatomy at the Universities of North Carolina and Kansas. At Kansas, during the academic year 1956-57, he was Assistant Professor of Zoology and Assistant Curator in charge of lower fossil vertebrates. Here in the National Museum he will have charge of the collections of fossil reptiles and amphibians, and in his research will devote himself chiefly to the late Paleozoic and early Mesozoic tetrapods.

NUCLEAR *continued from page 6*

in detailed manner. In order to provide some real data for predicting the effect of the planned nuclear detonation, two tests with high explosives were conceived and carried out by the Survey team, aided by a safety engineer from the Bureau of Mines. A 600-foot tunnel was driven in a site deliberately chosen to test the most fractured and faulted rock available. From rooms in this tunnel two explosions of conventional dynamite, one of 10 tons and the next of 50 tons, were detonated. After each shot the tunnel was cleaned out and the fracture patterns and other results were mapped in detail. These tests, not yet fully evaluated, provided not only some scale for predicting the results of the nuclear test, they also yielded facts on breaking power, on seismic effects, and on containment of dynamite blasts that will be of value to explosives and mining engineers and to geologists.

The site for the nuclear detonation was chosen on both topographic and geologic grounds. Steep slopes to permit a relatively short tunnel but with sufficient cover to provide a safety factor for the test, were required. These conditions were met by a mesa-like part of the Banded Range, shown in the northwestern corner of the Tippipah Spring quadrangle. As described in general terms by Johnson and Hibbard in U. S. Geological Survey Bulletin 1021-K, the rocks in this area consist of the Oak Springs rhyolitic tuff which overlies a complex basement of Paleozoic sediments. Except for a series of hard welded tuffs that cap the "mesa" the Oak Springs is made up largely of light colored film rhyolitic ash in relatively horizontal beds. It provides excellent tunneling conditions and is, moreover, so highly porous that it acted as an almost ideal absorbent for shock waves from the explosions, both conventional and nuclear.

Test Successful

The actual atomic test was so successful as to be almost anti-climactic. As the final 10-second count down began to come over the loud speaker the geologists and geophysicists in the observer group—professional pessimists all—braced themselves. They fully expected overall success of the experiment, but none would have been surprised to feel an earth shock, to see the top of the mesa bulge and perhaps fracture, or to see a jet of rocks, dust and radioactive material issuing from the tunnel portal. None of these things happened. A few observers felt a very slight tremor beneath their feet and a few saw the mesa quiver to the ground wave of the shock. Blocks of the welded tuff caprock soon tumbled down the slopes, kicking up clouds of dust. Nothing else! Minutes after the shot, jet planes and helicopters circled close to ground zero. They reported no cracks or fissures visible from the air. More significant, they reported no radioactivity above background. Within a matter of hours the first 1,100 feet of the tunnel was reopened and examined. It, too, was uncontaminated. Less than two tons of rock had spalled from its walls and back. One small fault near the portal had moved slightly, and, farther in the tunnel, a small thrust fault had developed along a bedding plane and had twisted the tracks a few inches.

Elaborate instrumentation by a number of scientific organizations proved that the detonation reached its expected yield. Seismic measurements showed that the energy transmitted to the ground was comparable to that transmitted by the larger air shots of the test series.

Evidently the self-sealing design of the tunnel was effective in containing virtually all of the effects. The size and character of the damage zone within the rocks is not yet fully known. The answers must wait further studies of the instrumental records, as well as the results of drilling that is intended to explore and sample the materials produced by the blast. Opinions differ as to the quantity and makeup of any manmade magma that may exist as well as to the pressures that will be encountered by the drill.

ROCK CHIPS

by SANDSTONE SAM

We agree with Pogo and his cronies—If the geophysicists have 18 months in their IGY, how can we rely upon their measurements of the earth?

• • •

Ven is der upgekurlen rock liken ein ausgepooped geologischer? Ven both ist knappen!

• • •

Unimportance is the sensation that comes when you make a mistake and nobody notices it.

SADDLE-LIGHTS: Don't let another day of the International Geophyzzical Year go by without buying your own personal saddle-light. You will find a style for every need: English, McClelland, Western, Vaquero (Special models for ladies). Prices reasonable—you are not reaching for the moon when you buy Nalpac Saddlelights from Nalpac Industries. (SaS Advt.)

FOREIGN FIELD RESEARCH

Scientists working in geomorphology, ecology, pedology and related fields may apply for support of field research to the third annual program of Geographical Field Research in Foreign Areas conducted by the Earth Science Division of the National Academy of Sciences with financial sponsorship of the Office of Naval Research. The awards are designed primarily to aid graduate students wishing to conduct field research for their doctorate dissertation. The awards provide for travel, field and living expenses. The closing date for applications is December 1, 1957. Write *Foreign Field Research Program, Division of Earth Sciences, NAS-NRC, 2101 Constitution Avenue, N.W., Washington 25, D. C.*

Why I Go On

FIELD TRIPS

The R. M. A. G. sponsored a Scotch Myst essay contest for the registrants in their August field excursion to North Park, Colorado. The essay theme was "Why I go on Field Trips" and the preliminary announcement tossed out a few ideas to work on—such suggestions as "to get away from the wife" or "to get away from the office." The entry was to be one hundred words or less. First prize was a fifth of Scotch, second prize a take-home pack of Coors, and third prize was the last drink of scotch in the fifth awarded first (are you confused?). We are pleased to present the winning entry by courtesy of the RMAG News-Letter.

THESIS "WHY I GO ON FIELD TRIPS"

I have been on every field trip in modern times. Carefully have I observed those who accompany me. Due to my presence during congenial, confidential discussions I can furnish an accurate analysis of why field trips are densely populated. There are those about me who marvel faithfully at studied geologic wonders while neighbor brethren revel over benefits of unsmogged, un-trampled landscapes. Others closely clustered around me praise these untelevised evening campfire hours and lack of daily desk routines. My reason for being here is simplest and most honest: I'm here to get drunk! I am a can of beer. (99 words.)

A. Cann O'Beer
(By agent B. A. Ogle)

GEOLOGY in the Public Eye

by Robert L. Bates

Subject of last month's column, and also of this one: the amateur mineral collectors known as rock-hounds. These people believe, probably correctly, that their numbers are exceeded by only two other groups of hobbyists: stamp collectors, and photography nuts. Stories about mineral collecting appear regularly in the public prints. Two recent examples are in *WE* (the Western Electric company magazine) for December 1956, and in the Methodist Church magazine *Together* for June 1957. According to the Satevepost of last August 17, a recent convert is Erle Stanley Gardner, who polishes mineral gems when not coining written ones.

For an idea of what interests rockhounds, consult *Gems & Minerals* (Box 687, Mentone, Calif.); *Rocks and Minerals* (Box 29, Peekskill, N. Y.); or *Earth Science* (Box 1357, Chicago 90). A recent number of the last-named contains articles on petroglyphs, garnet, the dowsing rod, snakes, archeology, and geology, as well as many advertisements of mineral dealers.

To what extent are rockhounds interested in minerals for what they tell, rather than merely for what they are? One authority estimates that only 10 percent care about mineral significance and background; another estimates 30 percent. It is suspected that the latter figure may be the more accurate. V. M. Arciniega, who has been conducting night classes in geology for many years at the Manual Arts Adult School in Los Angeles, has introduced hundreds of amateurs to geology, and many of these were rockhounds, as indicated by the recent awarding to Arciniega of life membership in the California Fedminsocs. The Elkhart (Indiana) Mineral Society, which only came into existence in 1956, made it an early order of business to arrange for a series of lectures on basic geology. Ray Gutschick of the University of Notre Dame volunteered his services. These are only two examples of a keen interest in geology among the rockhounds.

Want to organize a mineral society? The *Rock Club Manual* (Gazette Publishing Co., 45397 Airport Sta., Los Angeles 45) tells all about it. Business is brisk along these lines. The book is in its third printing.

If you have a story on Geology in the Public Eye, write: Dr. Bates, Dept. of Geology, Ohio State University, Columbus, O.

DEAR EDITOR:

I have just gotten back from another safari into the back country. There is a great undertone of unrest and discontent among the natives. Secretly they are whispering—they can't talk out loud for fear of being investigated. Yes, the natives are all deeply concerned over who stole the *Geo* out of the International Geofizzical Year.

These savages of course are not as worldly as our political planners (and science politicians); they are more classic in their concepts. They visualize the geophysicist, not as a white-frocked laboratory sort of chap about to blast off a "spoofnik," but as the ubiquitous "doodlebug" variety whom they have seen slogging through swamps and slashing through jungles.

But why are the natives so restless? They have seen motor-scooters in the Sears Roebuck catalogue and a lucky few have ridden in a Jeep. They long for such luxuries of their own, but from their own primitive, down-to-earth, limited knowledge realize these take metals to build and petrol to run. They know that the "doodle-buggers" are essential to the finding of both.

The natives are leery of these "Fizzical Fellers" because the only interest they have in the *geo* is as a blast-off platform. They figure these space men could gobble up the doodle-buggers and with them their chances for a motor-scooter or Jeep. The natives are seething—open rebellion could result—they just *could* march to put the *geo* back into geophysical.

Faithfully,

DR. LIVINGSTONE

DEAR EDITOR:

Because of AGU membership, this individual has been receiving *GeoTimes* for —lo, these many years. (This, of course, includes its predecessor, the old Newsletter.) Naturally, this automatic receipt has been greatly appreciated, enjoyed, convenient, and particularly gentle on the "dues and subscriptions" account. However—

Couple of months back you published a letter from a woman reader (bless her sainted soul) whose interest in geology is probably secondary at most. She had the good grace and whatever else it takes to enclose a contribution. Thank you, fair lady.

Now, when it takes a generous laywoman to show up a bunch of rock-knockers in the support of their own profession, (me included), some changes ought to be made. Please consider the accompanying as evidence of the contrite reformation of one such old r. k. I'm sending it in the green rather than by check because I don't feel that I'm even entitled to an income tax deduction.

With low bowed head,

EDWIN W. BRUNTON

DEAR SIRS:

Enclosed is a check for eight dollars, six dollars of which is for the "Glossary of Geology and Related Sciences." The other two dollars is for that destitute little neolithic underwater engraver. Long may he prosper!

Very truly yours,
R. J. PICKERING
Columbia Iron Mining Co.
Provo, Utah

---

*Geo. Times.

DEAR SIR:

Your Magazine of September 1957, with its letter signed by John B. Lucke of the University of Connecticut, reached me the day after I had given away the bulk of my library, maps and equipment to Birmingham-Southern College.

Their joy at the gift has made the parting with these beloved things a real pleasure.

It is so much better for young people to use things than for old people to store them.

Faithfully,
FREDERICK K. MORRIS

P. S. We truly enjoy GeoTimes.

DEAR SIR:

I write to thank you for kindly sending me GeoTimes. I have been having a long illness and this extra reading matter has therefore been doubly welcome. I am still convalescing and can expect to be so for a good many more months yet. I would therefore be most grateful if you would continue to keep me on the mailing list for GeoTimes.

Yours very truly,
W. J. ARKELL
Cambridge, England
Correspondent GSA

GEOLOGIC FIELD METHODS, *by Julian W. Low, 489 pp., 1957, Harper & Bros., 49 E. 33rd St., New York 16, N. Y. $6.00 professional edition, $4.50 text edition.*

Here is a field manual sized so that it will actually fit the average pocket. It covers every phase of field mapping including suggestions for camping in deserts, tropics and mountains. It describes plane table and other mapping methods, and emphasizes the use of aerial photographs.

The most useful portion of the book is that devoted to a thorough description of methods of observing and recording geologic data, and an important chapter on geologic illustrations. It includes consideration of geologic methods used in field exploration for petroleum and mineral deposits.

It is a good, compact reference book which the reviewer feels free to recommend not only to the younger geologists, but to the older ones as well, who assuredly can pick up some useful ideas.

J.V.H.

PENNSYLVANIA GEOLOGY OF THE CUMBERLAND PLATEAU, *by Charles W. Wilson, Jr., John W. Jewell, and Edward T. Luther., 21 pp., 15 pls., 1956, Tennessee Dept. of Conservation, Div. of Geology, Nashville, Tenn.*

A folio devoted to stratigraphy and economic geology of the Pennsylvania rocks of the plateau. Coal, oil and gas, building stone, glass sand and clay are mineral resources of the area.

SCIENTIFIC GERMAN, *by George E. Condoyannis, 164 pp., 1957, John Wiley & Sons, Inc., 601 West 26th St., New York, New York, $2.50.*

A handbook intended for use by the scientist or engineer who must acquire a reading knowledge of scientific German with little or no background. Also handy as a refresher.

SCIENTIFIC FRENCH, *by William E. Locke, 112 pp., 1957, John Wiley & Sons, Inc., 601 West 26th St., New York, New York, $2.25.*

A companion handbook to the above listed German book.

WYOMING OIL AND GAS FIELDS SYMPOSIUM, *assembled and edited by members of the Wyoming Geological Association, 550 pp., 1957. Available from Petroleum Information, P.O. Box 2452, Casper, Wyoming, sales agent for the Association; $20.00.*

A valuable reference book containing structural contour maps of all Wyoming fields discovered prior to January 1, 1956, and data sheets with production and reserve information. This comprehensive volume includes a summary of geologic history and structure of Wyoming, a stratigraphic correlation chart, formation abbreviation index, index map of fields and pipelines, and a resume of petroleum industry history in Wyoming. Bound in looseleaf form to facilitate later supplements.

URANIUM PROSPECTING, *by Hubert Lloyd Barnes, 117 pp., 1956, Dover Publications, Inc., 920 Broadway, New York 10, N. Y., Paperbound, $2.00.*

A handbook intended for the non-technically trained uranium prospector. It provides helpful information in an easy-to-find, easy-to-use style.

GEOLOGY AND ECONOMIC RESOURCES OF THE OHIO RIVER IN WEST VIRGINIA, *by Aureal T. Cross, Mart P. Schemel & Others, 409 pp. in 3 parts, 1956, Vol. XXII, West Virginia Geological Survey, Morgantown, West Virginia.*

This report is organized in three parts: Part I—Geology; Part II—Economic Resources; Part III—Ground-Water Resources. It is accompanied by an Atlas of detailed geologic maps, printed in color. Not only is the report a major contribution to the geology of the area, but it will prove most helpful to industries seeking a plant site.

CANADIAN GEOPHYSICS SCHOLARSHIP

The Canadian Society of Exploration Geophysicists has completed arrangements for nine industry-sponsored $350 scholarship grants available to students in geophysics in Canadian Universities. These awards are available for students at the Queens University and the Universities of Western Ontario, Saskatchewan, Alberta and British Columbia. The donors of these scholarships are the Seismic Service Supply Co., Herb J. Hawthorne, Inc., Continental Explosives, Ltd., and Griffin Tank and Welding Service.

NEW *Ideas Products Services*

GEO-TIMES will welcome press releases and notices of new ideas, products and services from companies and individuals for possible use in this section.

PRINCIPLES AND PRACTICES OF COLLEGE RECRUITING is the title of a new pamphlet which has been prepared through the joint efforts of the College Placement Council and representatives of employers and professional organizations in an effort to standardize recruiting practices in the best interests of students, colleges and employers alike. Single copies may be obtained for 25 cents from EDUCATIONAL DEPARTMENT, CHAMBER OF COMMERCE OF THE UNITED STATES, *1615 H Street, N.W., Washington 6, D. C.*

SOURCES OF INFORMATION ON GEOLOGY AND MINING IN THE WESTERN STATES is the title of a handy, well organized reference book compiled by W. B. Beatty and Lee Langan. It is available in limited quantities to persons interested in western geology and mineral resources by writing on company letterhead to the newly organized DEPARTMENT OF EARTH SCIENCES, STANFORD RESEARCH INSTITUTE, *Menlo Park, California.*

FINGER-TIP FLUID DISPENSER is developed for easy, frequent dispensing of laboratory fluids. Constructed of stainless steel and anodized aluminum with Pyrex nozzle and Nalgon delivery tube. Operates at touch of finger to deliver drop at a time or one pint a minute. Write PALO LABORATORY SUPPLIES, INC., *Dept. G, 81 Reade St., N. Y. 7, N. Y.*

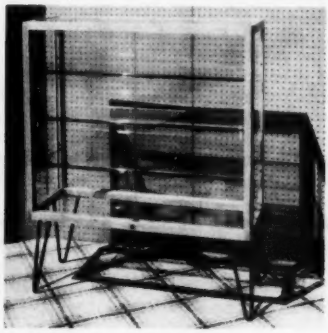
ELECTRONIC COMPUTER is the newest laboratory tool to be placed in use by the U. S. GEOLOGICAL SURVEY. The computer has been used to analyze X-ray data of minerals in order to solve problems of atomic structure. The equipment also contains a magnetic tape memory or auxiliary storage unit, card punching machines and printing machines. It is anticipated that the new "electronic brain" will be applied to many and varied geologic problems.

WARD'S PRESENTS ...

"THE CRYSTALITE"

Modern Display Cabinet

FOR YOUR PRIZED COLLECTION AND SPECIMENS



From the Waddell cabinet craftsmen comes this spacious, graceful cabinet—the "Crystalite." The case is 36" long by 42" high by 13¾" deep. Three sturdy clear glass shelves 12" x 34" are provided with 7 adjustments for height. Finger tipped sliding glass doors lock for safety—top and bottom are of glass for maximum light. "Ameroc" finish protects the distinctive wood finish. Sturdy and attractive modern wrought iron legs. Shipped in convenient, sturdy double shipping cartons.

C 3332.6 **The 'Crystalite,"** complete ..... **$54.75 F.O.B. Factory**

Write on your school or business letterhead for Ward's complete Geological Materials Catalog 363, Mineral Specimen Catalog FM-10

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.
P. O. BOX 24, BEECHWOOD STATION
ROCHESTER 9, NEW YORK

CLASSIFIED ADS . . .

	1 ti.	3 ti.	6 ti.	12 ti.	
POSITIONS WANTED	$0.25	—	—	—	per line
VACANCIES	2.00	1.35	—	—	per line
SERVICE-SUPPLIES	2.00	1.35	—	—	per line
CONSULTANTS	2.00	1.35	—	—	per line
ONE INCH BOX	25.00	22.50	21.25	20.00	

Min. Charge $1.00. AGI box numbers $1.00 extra. No discounts. All classified advertisers will be billed, do not send advanced payments. *Address all communications to American Geological Institute, 2101 Constitution Ave., Wash. 25, D. C.*

VACANCIES

GEOLOGIST-GEOGRAPHER—Position open for a woman with a B.A. or B.S. in geology, with geography minor, or vice versa. Post-college experience desirable, but not essential. The work involves library searches, compilation of annoted bibliographies of geological literature dealing with a variety of industrial raw materials. Ability to write clearly essential. Opportunities for co-authorship. Salary commensurate with experience and proven ability. Send complete resume to Leslie G. Hill, Personnel Department, Battelle Memorial Institute, Columbus 1, Ohio.

WICHITA UNIVERSITY, Wichita 14, Kansas. Rank and salary dependent upon qualifications. Ph. D., to teach mineralogy and related courses. Write J. R. Berg, Dept. of Geology.

UNIVERSITY OF IDAHO invites applications for the position of Head of the Department of Geology and Geography effective September 1, 1958. Rank and salary depend upon qualifications. Submit full particulars and references to Dean, College of Mines, University of Idaho.

GEOMORPHOLOGIST for air photo geomorphic structural analysis Western Canada. Write to Geophoto Services, Ltd., Examiner Bldg., Calgary, Alberta, Canada, for application forms.

YALE UNIVERSITY. Laboratory technician (permanent position) to take charge of rock and mineral preparation and experimental work. Specific knowledge of experimental techniques with rocks, minerals, and ores not essential if applicant has background and aptitude for laboratory work. Department of Geology, Box 2161, Yale Station. New Haven, Conn.

UNIVERSITY OF MINNESOTA, DULUTH BRANCH. Opening September, 1958. Assistant Professor to teach petrography, petrology, and associated courses. Ph.D. required. Salary dependent on qualifications. WRITE: Head, Department of Geology, University of Minnesota, Duluth Branch, Duluth 11, Minnesota.

POSITIONS WANTED

BOX 341. Geologist, M.S., age 31, married, 4 years experience mapping, mineral property evaluation, and development in western U.S. Administrative experience. Commercial pilot with geologic reconnaissance and radiometric survey experience. Wish to associate with investment, consultant, or exploration group. Presently employed as Area-Geologist.

BOX 342. GEOLOGIST, Ph.D., well prepared in the areas of Economic Geology, Mineralogy, and Petrography, seeks position involving research or exploration; also teaching on the University level. Widely traveled, familiar with the literature and excellent references.

BOX 344. GROUND-WATER GEOLOGIST-HYDROLOGIST, 16 years experience U.S. Geological Survey. Presently employed. Desires employment private industry.

BOX 345. Geologist, 25 yrs., single, B.S. Available immediately. 1 yr. Mining Geologist in base metals and exploration in non-metals in Western States. Speaks German. Desires foreign work. Petroleum or Mining.

BOX 353. "GENERAL PRACTITIONER"—GEOLOGIST; Ph.D. desires professorship or research position extensive background; petroleum, groundwater, and ore deposits surface and subsurface geologic techniques; lithofacies, paleogeography, sedimentation, tectonics. Available within 30 days.

BOX 356. PETROLEUM GEOLOGIST, Ph.D. degree speaking fluent English, French, Italian, German, 8 years experience in surface and subsurface geology, domestic and foreign service, wishes to associate with oil producers, consultants, drilling contractors, investment groups interested in reconnaissance geology, concessions or promoting in Eastern hemisphere. Projects in some European countries available.

RETURNING TO STATES after four years in Brazil buying and selling rough mineral specimens and rough and cut gem materials; graduate geologist; "Fellow" Gemmological Association of Great Britain; two years teaching experience at Gemmological Institute of America; desires position making use of experience and knowledge. Jack E. Schunk, P.O. Box 65, Sheridan, Wyoming.

BOX 357. GEOLOGIST, Ph.D., 42, married, desires teaching position with research possibilities. Twelve years teaching experience, field experience in areal mapping. Background principally in stratigraphy-paleontology—including micro-paleontology—sedimentary rocks, and general geology.

BOX 358. GEOLOGIST, 32, B.A., M.A., married. Desires teaching position with opportunity for research, in college or university offering degree in geology. Four years exp. in oil and uranium geology in Rocky Mountains.

BOX 359. GEOLOGIST, B.S., 6 years exploration in the Four Corners, Panhandle and West Texas. Experience includes seismograph and administration. Desires more responsibility. Excellent references.

BOX 360. GEOLOGIST, desires teaching-research position in college or university. Ph.D., 49, family. Interest in sedimentation, petroleum geology, mineralogy, ore deposits, general geology, and groundwater. Four years teaching experience in major university; 15 years commercial experience in petroleum and mining exploration and research. Excellent references.

BOX 361. ECONOMIC GEOLOGIST, Ph. D., with over 10 years experience in mining geology, property evaluations, exploration and mineral economics, desires responsible position with mineral exploration organization.

BOX 362. GEOLOGIST, 15 years oil exploration in numerous oil provinces, U. S. and Canada. Also minor teaching and journalistic background. M.A. with unusually broad geological education. Capable of detailed stratigraphic research, straight commercial geology, specialized writing, or teaching geology. Can locate good oil and gas reserves, if backed by proper finances and aggressive outlook. Prefer southwest location, but will handle any geological area, for reasonable salary or interest. Excellent references. Available immediately.

BOX 363. GEOLOGIST, 28, B.S. in Geology, family. Two years with U.S.G.S., subsurface mapping and ground-water hydrology. Desires field, research or administrative position with stable company or grad.-teaching assistantship with growing geology department of small college.

BOX 364. ENGINEERING GEOLOGIST, experienced in all phases of ground-water, water-supply, and waste-disposal problems. Desires responsible position, foreign or domestic.

BOX 365. RESEARCH GEOLOGIST, 27, 2 years experience in log analysis and reservoir evaluation. Desires position in Houston or Denver. Presently employed.

BOX 366. GEOLOGIST-GEOPHYSICIST, D.Phil., 20 years professional experience in teaching, consulting, advisory and expeditionary duties. Widely travelled in Latin America, Europe, Middle East. Fluent in Spanish, French, German. Present position, Head of Geology-Geophysics Dept. Desire university position or with consulting-investment-exploration group. Specialties Petrology, Tectonics, Economic and Engineering Geology, Photogeology, Gravity and Magnetic. Excellent connections, both academic and professional, in Europe and Middle East.

BOX 367. GEOLOGICAL ENGINEER, 25, B.S., single, vet. Prefer position in West or foreign.

"GEOLOGICAL EXPLORATION"

A dozen authoritative articles on Michigan Copper; Ontario base metals and uranium; geophysics, geochemistry, and photogeology, and geological factors affecting beneficiation of Lake Superior iron ores. Illustrated Proceedings of 1956 Institute on Lake Superior Geology. Edited by A. K. Snelgrove. Illustrated, 110 pp., size 8½x11. $2.00 postpaid. Michigan Tech Press, Houghton, Michigan.

GEOLOGISTS AND GEOPHYSICISTS
(South America)

Major oil company has immediate openings in expanding South American operations for graduate geologists; also geophysicists experienced in interpretation and supervision. Working knowledge of Spanish desirable. Career positions. Forward personal data and college transcript to: **Box 82.**

CONSULTANTS

THE GEOPHOTO GROUP
DENVER, COLO. - CALGARY, ALTA.
WORLD-WIDE
PHOTOGEOLOGIC EVALUATION
and
DETAILED SURFACE MAPPING

E. J. LONGYEAR CO.
Geological and Mining Consultants
Photogeology

76 South 8th Street	Minneapolis 2, Minn.
Graybar Bldg.	New York 17, N. Y.
Colorado Bldg.	Denver 2, Colo.
Shoreham Bldg.	Washington 3, D. C.
Canadian Longyear Ltd.	North Bay, Ont.
Longyear et Cie	Paris, France
Longyear N.V.	The Hague, Holland

SERVICES & SUPPLIES

FOR SALE: Representative private collection minerals, fossils and petrology. Suitable for Jr. Colleges. List sent on request. Mrs. Guy Hall, 103 E. Circle Dr., Canon City, Colorado.

WANTED: The Billings Geological Society is trying to acquire for the Billings Public Library a full set of the "Bulletin of the Geological Society of America." Please notify J. K. Arbenz, Box 2547, Billings, Montana, of any such sets that are for sale.

THE McLEAN CARD CATALOGUE OF AMERICAN FORAMINIFERA

THE FRIZZELL-EXLINE CARD CATALOGUE OF HOLOTHURIAN SCLERITES

THE McLEAN CARD CATALOGUE OF OSTRACODES

JAMES D. McLEAN, JR.
Box 916,
Alexandria, Virginia, U. S. A.

SPRAGUE & HENWOOD, INC.
Drilling Services
Foundation Investigations Test Boring
Grout Hole Drilling and Pressure Grouting
Diamond Core Drilling
221 W. Olive St., Scranton, Pa.
New York, Philadelphia, Pittsburgh, Atlanta
Grand Junction, Colorado
Buchans, Newfoundland

THIN SECTIONS

Petrographic thin sections made from your cores, core chips or sedimentary or metamorphic outcrop samples. Careful attention to individual orders. Quality workmanship. Satisfaction guaranteed. Reasonable prices. Price list on request.

CAL-BREA, P. O. Box 254
BREA, CALIF.

"I saw it in GeoTimes."

We are map printing specialists. Today we are delivering a *better* scientific map *for less cost* than was possible a few years back. Here's why; (1) we operate our own specialized mapping department staffed by highly skilled map craftsmen who work on maps and maps only—(2) we have developed our own exclusive production techniques based on 30 years of extensive and intensive map printing experience—(3) our services include preparation and/or collection of base maps, geologic drafting, engraving, scribing, color plating and lithographing—(4) we provide professional cartographic consultation on a no obligation basis and cost estimates free of charge. Yes, we'd like to "talk turkey" about your map printing jobs. Call LI 3-7140—or write—we are at your service.

Williams & Heintz

WILLIAMS & HEINTZ LITHOGRAPH CORPORATION
220 EYE STREET, NORTHEAST, WASHNGTON, D. C.

GeoTimes
2101 Constitution Ave.,
Washington 25, D. C.
Form 3547 Requested
Return Postage
Guaranteed.

COORDINATION – COOPERATION · SERVICE ·

AMERICAN GEOLOGICAL INSTITUTE

SERVING THE GEOLOGICAL SCIENCES

Let do it!

... Let him carry your advertising banner in 1958.

Why ?

... Because he really gets around.
... He personally administers a shot in the arm to 27,000 geologists and geophysicists every month.

Well who is ?

... He is the fellow who carries news of the profession to geologists and geophysicists everywhere .... news of meetings, stories of the profession, the latest books and many other features.

He is GeoTIMES of course!

... Look him up in SRD's
Business Publications Rate & Data